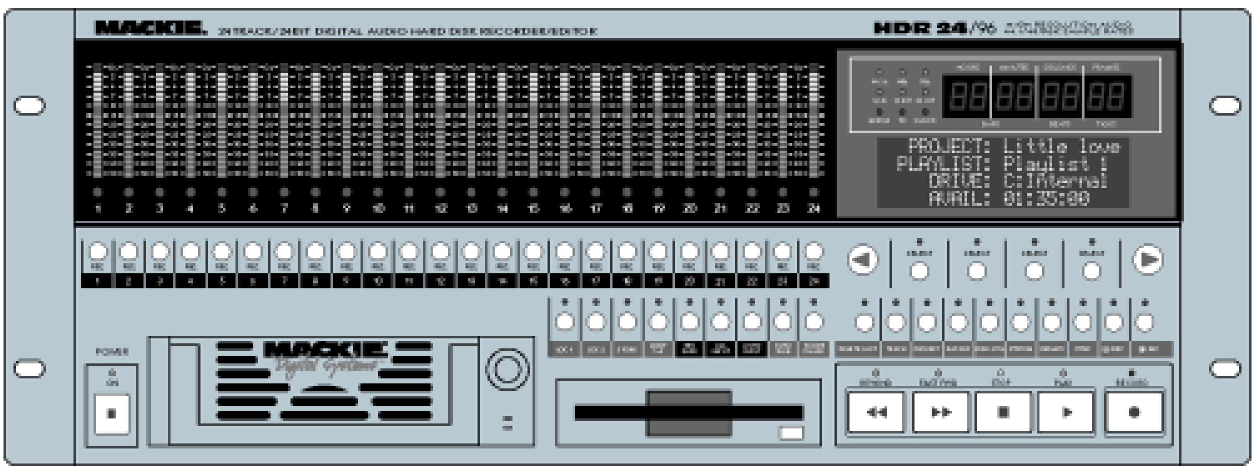
MACKIE®

HDR 24/96

Hard Disk Recorder



SERVICE MANUAL

SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY EXPERIENCED REPAIR TECHNICIANS ONLY

CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE

CAUTION *AVIS*

RISK OF ELECTRIC SHOCK
DO NOT OPEN

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED PERSONNEL

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE.

AVIS:POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE A LA PLUIE OU A L'HUMIDITE.

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UN PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS LAISSER AUCUNE PARTIE A DECOUVERT.

This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION :Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le réglement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio energy and, if not installed properly and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'éléctrocution.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

WARNING
Service on the HDR 24/96 must only be undertaken by experienced service technicians.

! SMD !
The HDR 24/96 makes extensive use of surface mount components. Servicing technicians should have the tools, experience and patience to perform surface mount rework.

! ESD !
The HDR 24/96 contains components that may be damaged by elecrostatic discharge. All standard ESD precautions must be taken when servicing.

Warning!: Before applying power to the HDR24/96, make sure that the Voltage Selector switch next to the AC inlet jack on the rear panel is set to the line voltage used in your region. Powering-on the HDR24/96 with the Voltage Selector switch set incorrectly will cause an electrical and fire hazard that may result in irreparable damage to the unit.

Additional Safety Information

The following notice concerns the lithium battery located on the motherboard inside the HDR 24/96 chassis.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE, REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MEME TYPE OU D'UN TYPE ÉQUIVALENT RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

CONTENTS

Click on any item to go to that page



Click on any item to open up the guide page G4

Service Bulletins

Introduction

This manual contains service information for the HDR 24/96 Hard Disk Recorder. To service the HDR 24/96, technicians should be familiar with op-amp based and discrete analog circuitry, digital troubleshooting, microprocessors, digital audio, DSP, ESD, ESP, and the operation/application of Hard Disk Recorders. Presentation of this manual does not constitute endorsement of qualifications by Mackie Designs.

This manual is available in Adobe© Portable Document Format (PDF), as part of Mackie Designs' Digital Service CD-ROM (part# 820-163-00). This is available to all Service centers authorized to repair the HDR 24/96. Also included on the CD-ROM are the schematics, PCB layouts, parts lists, assembly drawings, and the owner's manual.

It is essential that you become familiar with the owner's manual as it will be a great help for you to verify customers complaints, and to check for correct operation.

SERVICE TECHNICAL ASSISTANCE

Mackie Designs, Service Technical Assistance, is available 8AM - 5PM PST, Monday through Friday for Authorized Mackie Service Centers, at 1-800-258-6883. Feel free to call with any questions and speak with a carefully-calibrated technician. If one is not available, leave a detailed message and a qualified Mackoid will return your call asap.

DISCLAIMER

The information contained in this manual is proprietary to Mackie Designs, Inc. The entire manual is protected under copyright and may not be reproduced by any means without express written permission from Mackie Designs Inc.

GETTING STARTED

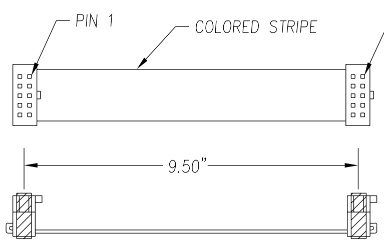
Think of the HDR 24/96 as a standard PC with extra Mackie boards inside. Standard PC troubleshooting techniques and commercially available diagnostic DOS software can be applied to repair the HDR 24/96.

A preliminary inspection will often reveal a simple problem, such as a bad connection somewhere, perhaps a loose cable, a bad switch or control, bad EEPROM or the CPU's CMOS settings may need to be reset. Check out the service bulletins, there is one which explains how to replace the EEPROM.

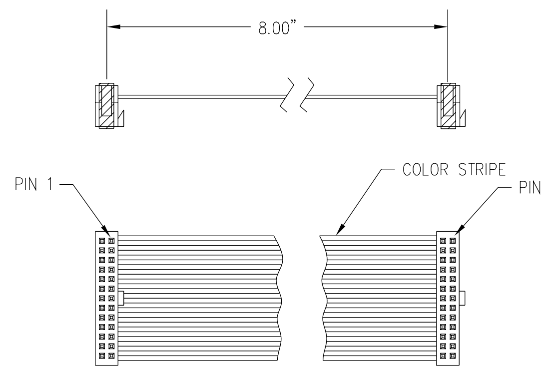
Our technical support team are available to discuss any problems and offer solutions.

Ribbon Cables

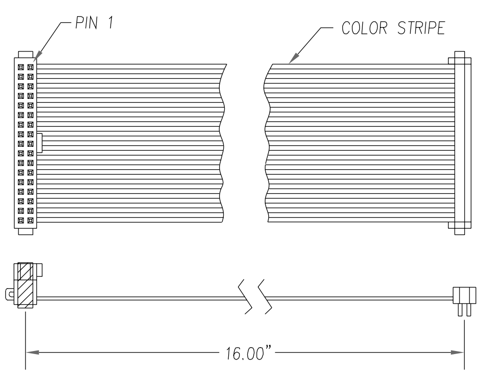
Part#	Description	Rev	Qty
040-383-00	RIB 28GA 10C 14.0 PLZD	A	1
040-384-00	RIB 28GA 26C 4IN PLZD	B	1
040-385-00	RIB 28G TRANS 34C 18.5IN	B	1
040-386-00	RIB 28G 26C .100 14.50IN	B	1
040-387-00	RIB 28GA 14C 16.0 PLZD	A	1
040-390-00	RIB 28GA 10C 7.00 PLZD	B	2
040-393-00	CBL ASY 22G 4C/6P 9.0IN	A	1
040-438-00	RIB 28GA 16P .100 15.50IN	A	1
040-489-00	DIS 18GA 4C 4.5IN PWR/MOL	A	1
040-496-00	DIS 18GA 4C 14IN PWR EX	A	1
040-497-00	DIS 22G 1007 2C/12P	A	1



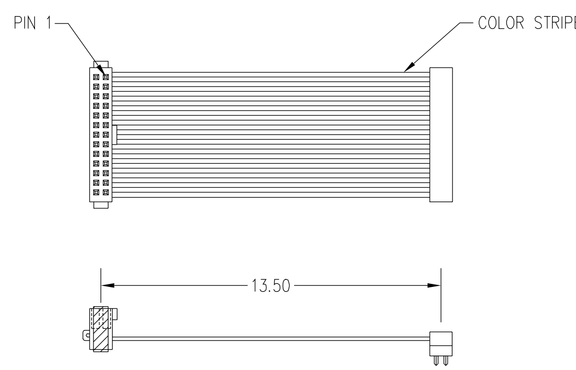
RIBBON CABLE ASSY PLZD
28GA 10C .100, 9.50"
040-383-00 REV. A



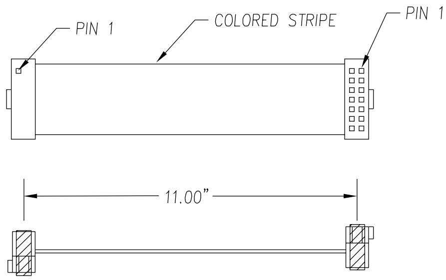
RIBBON CABLE ASSY
28GA 26C 8" PLZD
040-384-00 REV. A



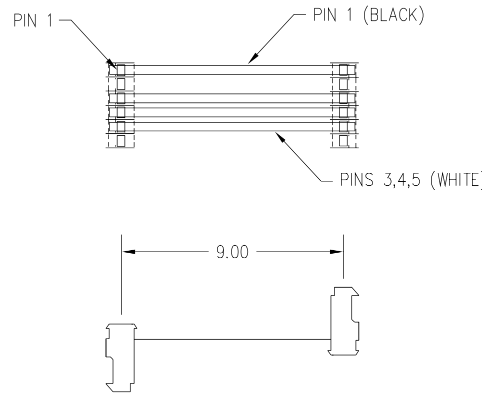
RIBBON CABLE ASSY TRANS
28GA 34C .100 16.00IN
040-385-00 REV. A



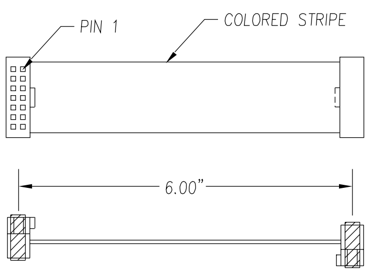
RIB CBL ASSY TRANS/PLZD
28GA 26C .100 13.50"
040-386-00 REV. A



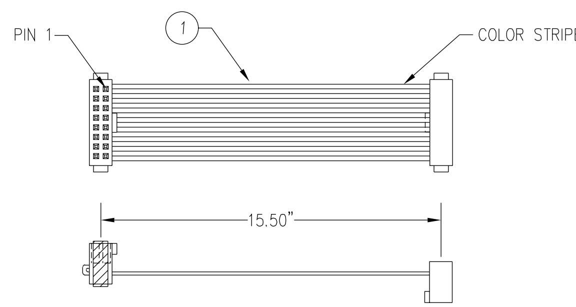
RIBBON CABLE ASSY PLZD
28GA 14C .100 11.00"
REV.
040-387-00 A



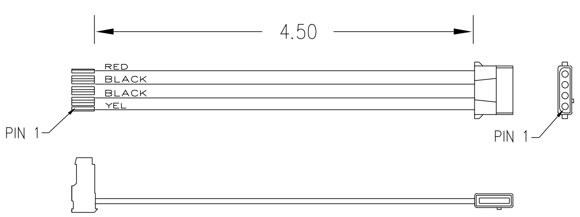
DISCRETE CABLE ASSY
22AWG 4C/6P .100 9.00"
REV.
040-393-00 A



RIBBON CABLE ASSY PLZD
28GA 10C .100 6.0"
REV.
040-390-00 A



RIB CBL ASSY PLZD
28PIN 16P .100" 15.50"
040-438-00



DIS 18GA 4C 5IN
PWR / IDC
REV.
040-489-00 A

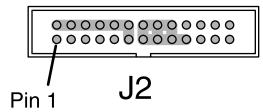
Connectors

This table shows each connector and the boards they connect to. The following pages show each connector in detail, including the labeling and designation on each pin of the connectors.

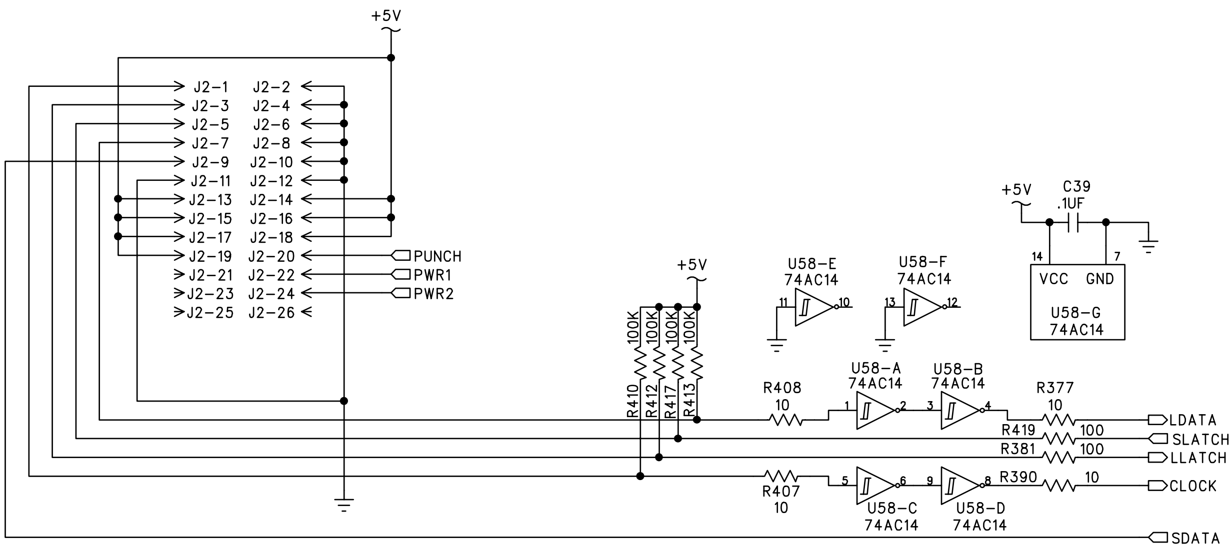
J#	Pins	From	To	Description	Cable	Page
J2	26	Front Panel	J2 Brain board	Clock, Latch, Data		9
J2	4	Backplane	J2 Post Stamp	DC Power	040-489-00	10
J1	10	Backplane	J1 Brain board	Mute, Reset, IO TX, IO RX	040-383-00	10
J3	34	Backplane	J3 Acuma board	CLK, DT data transmit	040-385-00	10
J4	26	Backplane	J4 Acuma board	DR data receive	040-386-00	10
J18	62	Backplane	Card Connector	various		11
J19	62	Backplane	Card Connector	various		11
J20	62	Backplane	Card Connector	various		11
J9	4	Brain board	Power Supply	DC Power		12
J5	14	Brain board	J5 Remote I/O board	COM1, COM2, Punch	040-387-00	12
J7	16	Brain board	VFD	Display data	040-438-00	12
J3	2	Brain board	Motherboard	Flasher, +5V		12
J2	26	Brain board	J2 Front Panel board	Clock, latch, data	040-384-00	13
J8	2	Brain board	VFD Display			13
J1	10	Brain board	J1 Backplane	Mute, Reset, IO RX, IO TX	040-383-00	13
J2	4	Remote I/O	Power Supply	DC Power		14
J9	10	Remote I/O	Serial 2 Mother board	COM2	040-390-00	14
J10	10	Remote I/O	Serial 1 Mother board	COM1	040-390-00	14
J5	14	Remote I/O	J5 Brain board	COM1, COM2, Punch	040-387-00	15
J4	3	Remote I/O	1/4” TRS jack	Punch		15
J3	9	Remote I/O	Mouse	Mouse data		15
J6	6	Remote I/O	Motherbrd Mouseport	Mouse data	040-393-00	15
J1	12	Remote I/O	Small Remote	Remote data		15
J1	4	Post Stamp	Power Supply	DC Power		16
J2	4	Post Stamp	J2 Backplane	DC Power		16
J3	34	Acuma board	J3 Backplane	Mackie Bus Output	040-385-00	17
J4	26	Acuma board	J4 Backplane	Mackie Bus Input	040-386-00	17
J5	6	Acuma board	SMPTE 1/4” Jack	SMPTE		18
J2	2	Acuma board	CLK IN BNC Jack	CLK IN		18
J1	2	Acuma board	CLK OUT BNC Jack	CLK OUT		18
PCI	124	Acuma board	PCI Connector	PCI data		19

Front Panel Connector

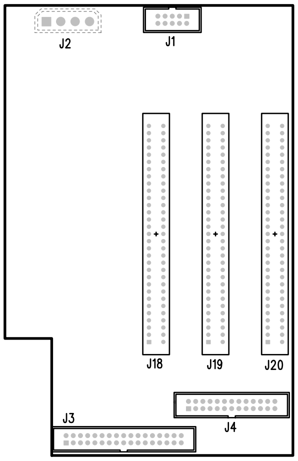




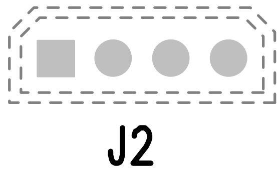
This connects to J2 of the Brain board, see page 13



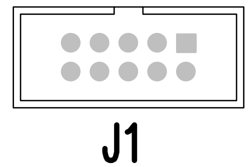
BackPlane Connectors

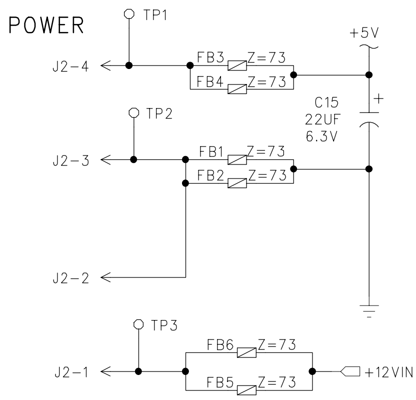


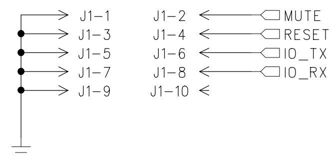
Power from J2 of poststamp board, see page 16

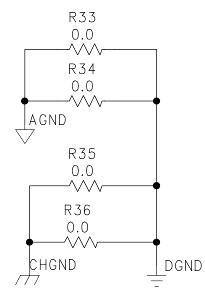


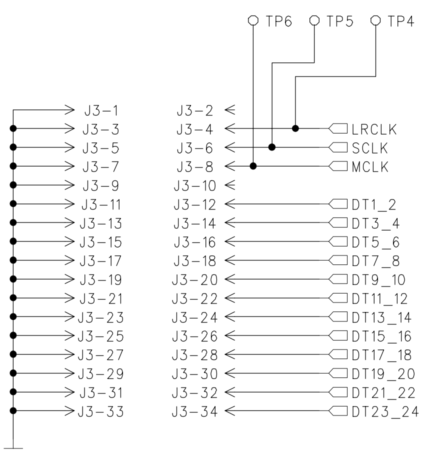
This connects to J1 of the Brain board, see page 13

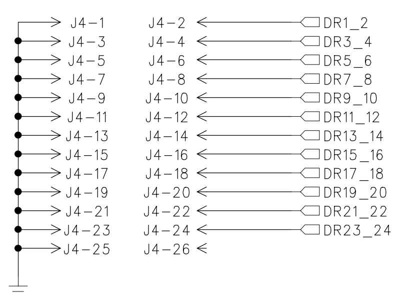


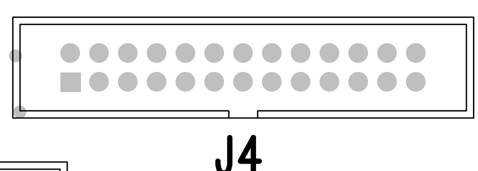




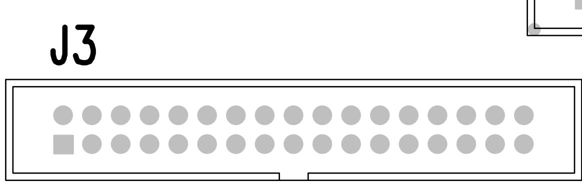






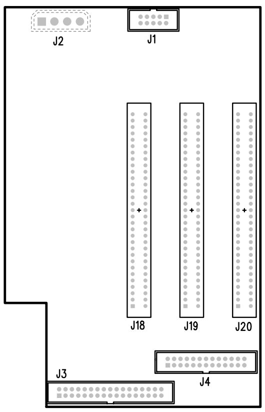


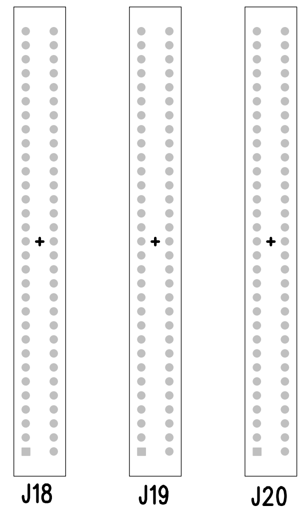
This connects to J4 of the Acuma board, see page 17

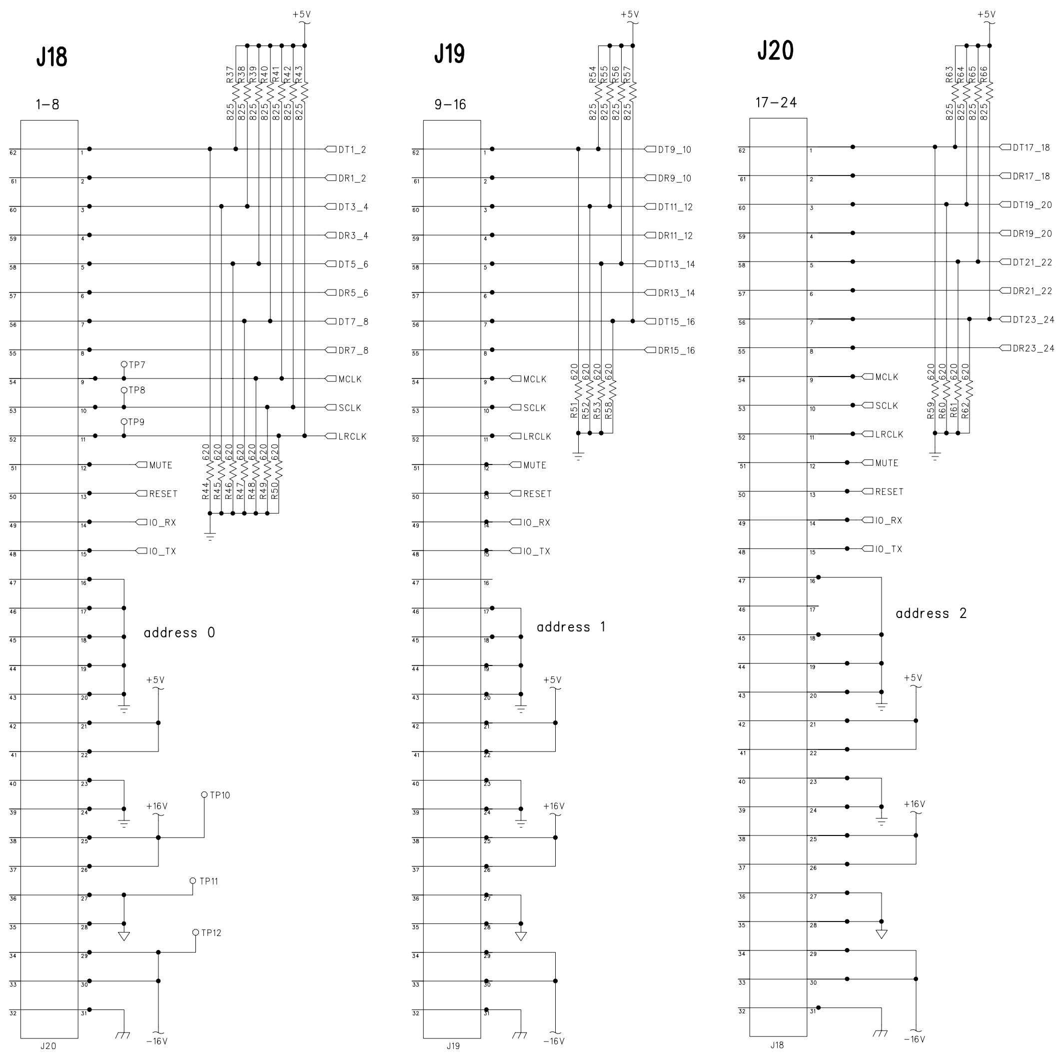


This connects to J3 of the Acuma board, see page 17

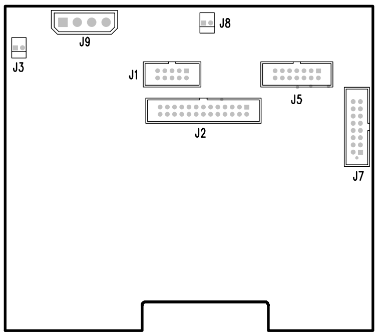
BackPlane Connectors

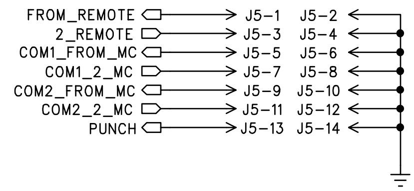




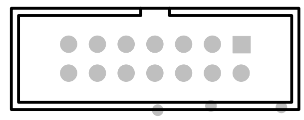


Brain Board Connectors

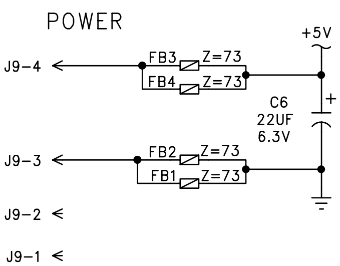


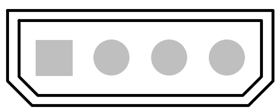


This connects to J5 of the remote board, see page 15



J5

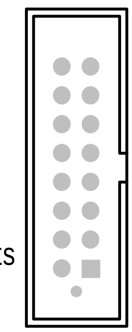




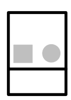
J9

This connects to power supply

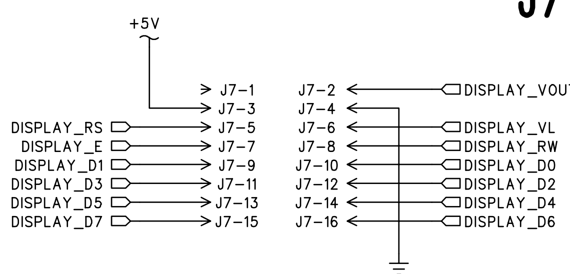
This connects to the VFD

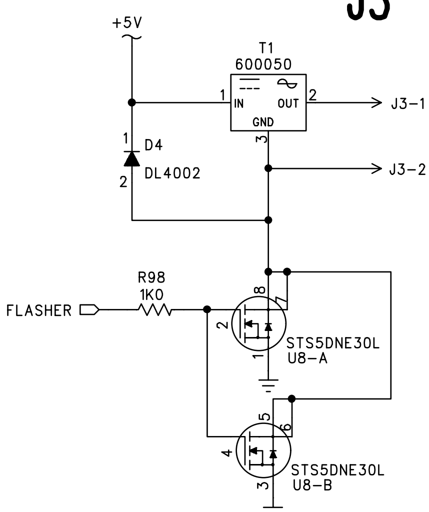


J7

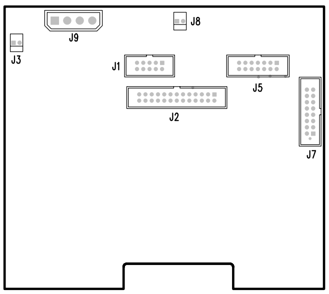


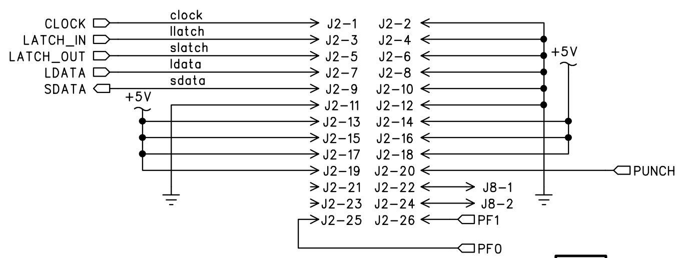
J3

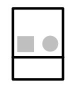




Brain Board Connectors

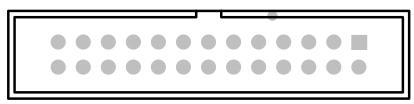




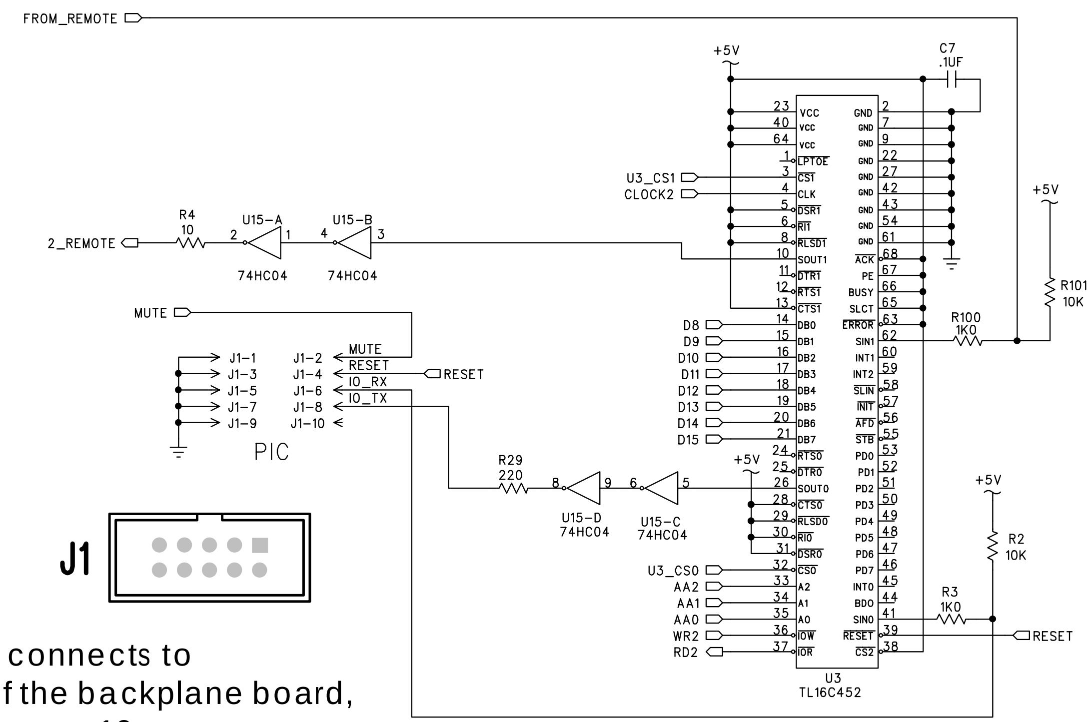


J8

This connects to
J2 of the front panel board,
see page 9



J2

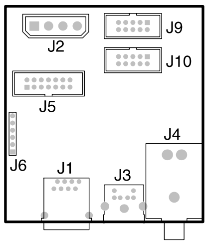


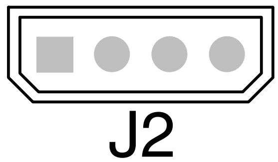
J1

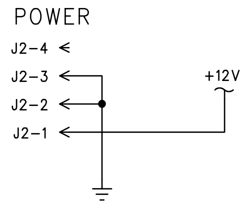
This connects to
J1 of the backplane board,
see page 10

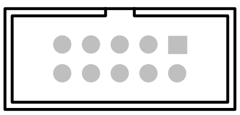
HDR HOME

Remote Board Connectors

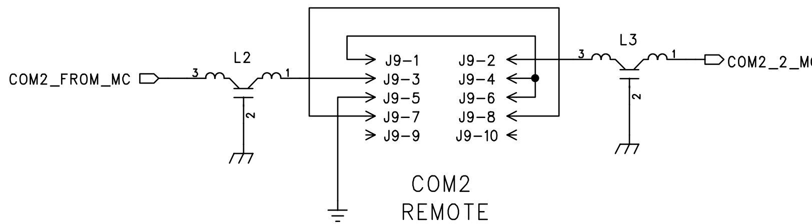




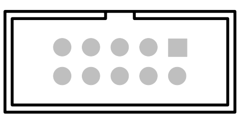




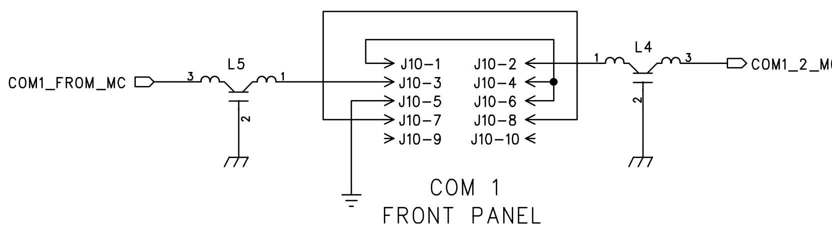
J9



This connects to
Serial 2 of the
motherboard

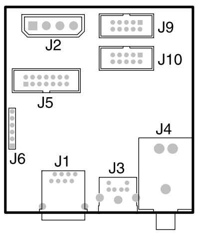


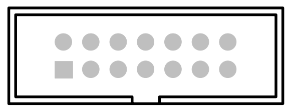
J10



This connects to
Serial 1 of the
motherboard

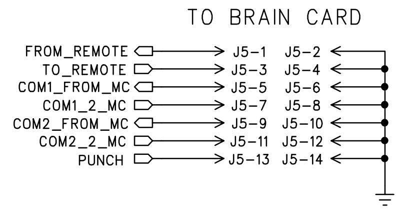
Remote Board Connectors



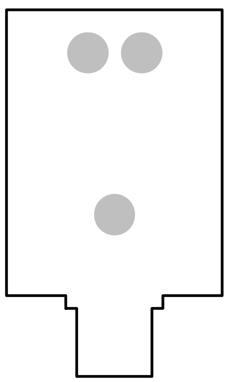


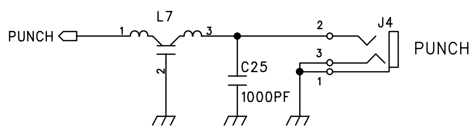
J5

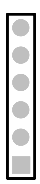
J5 connects to J5 of the brain board, see page 12



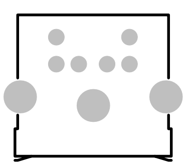
J4





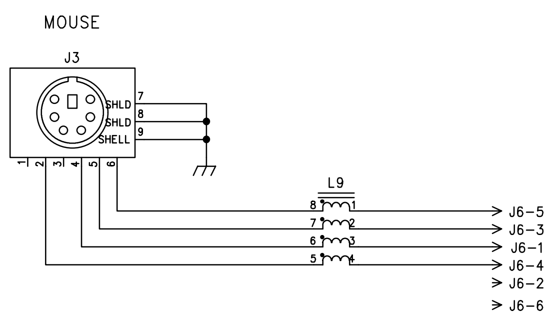


J3

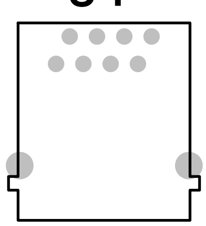


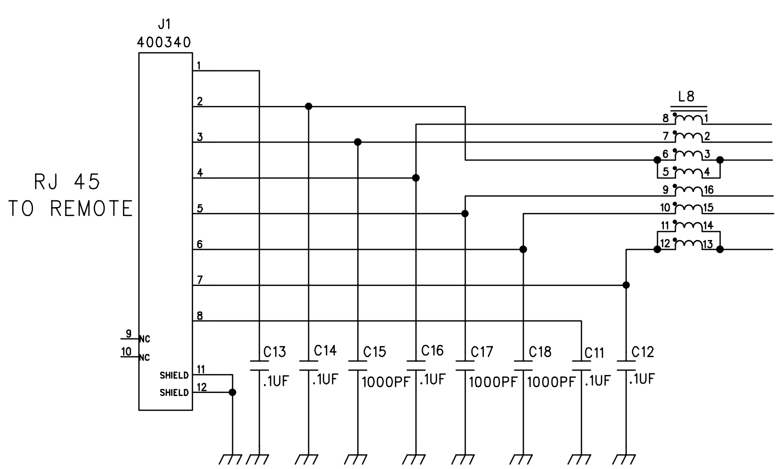
J6

J6 connects to the Mouseport of the motherboard

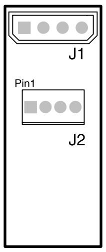


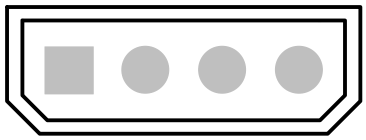
J1





Post Stamp Board Connectors

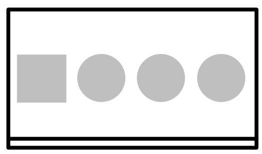




J1

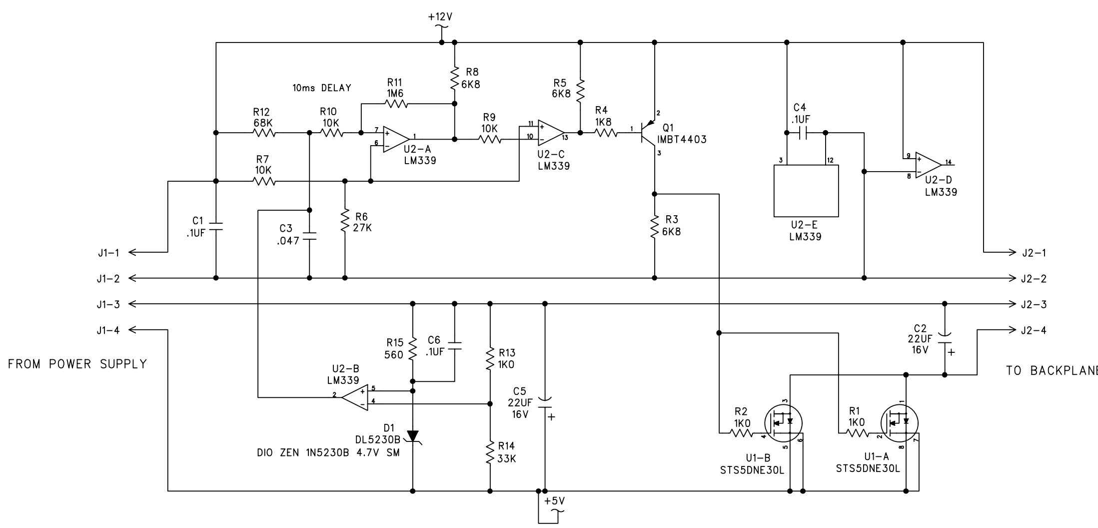
This connects to power supply

Pin1

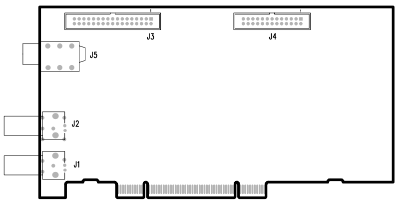


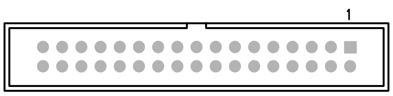
J2

This connects to J2 of the backplane board, see page 10



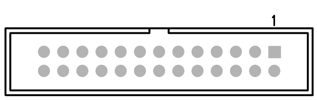
Acuma Board Connectors





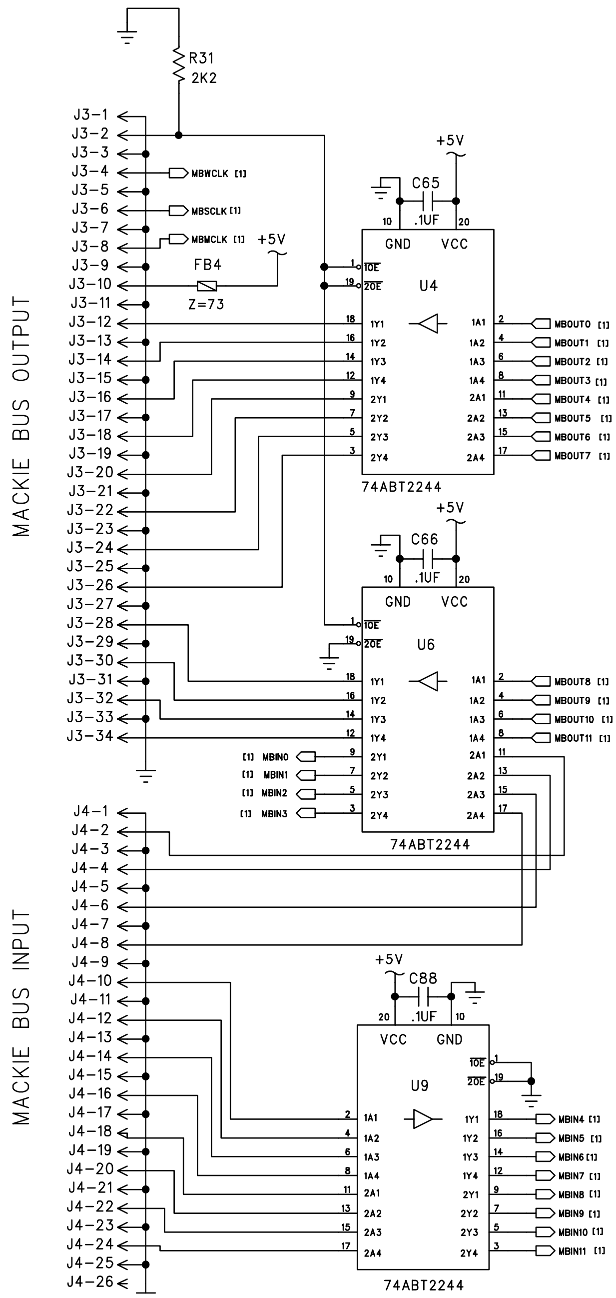
J3

This connects to J3 of the Backplane, see page 10

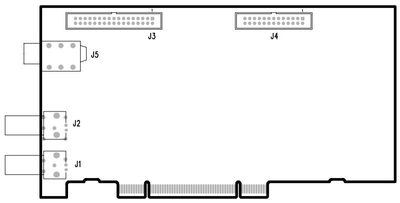


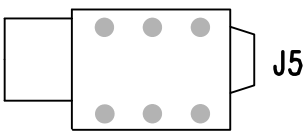
J4

This connects to J4 of the Motherboard, see page 10

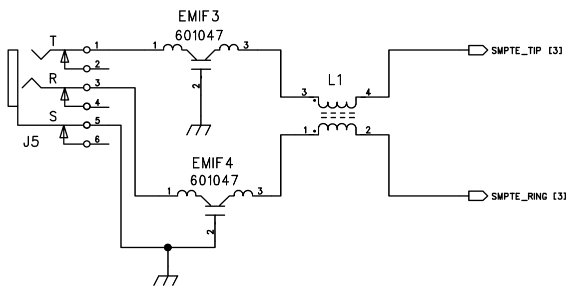


Acuma Board Connectors

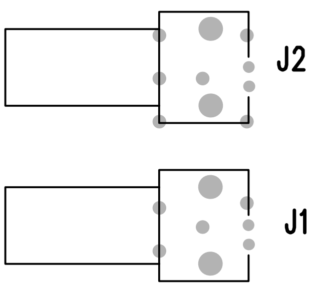




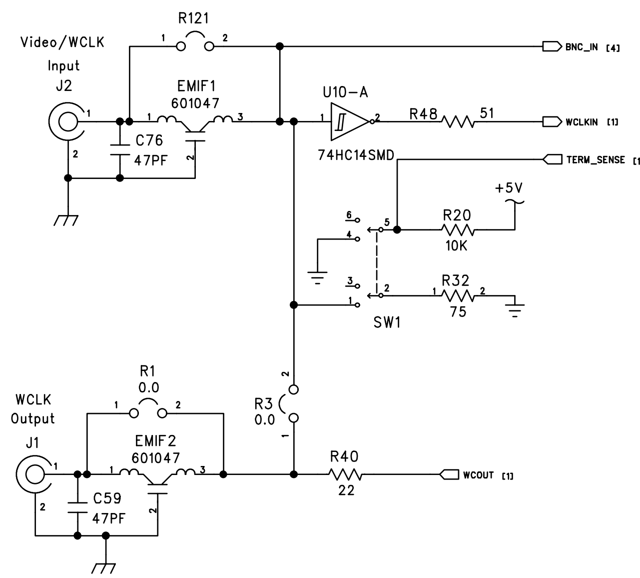
SMPTE (TRS 1/4”)



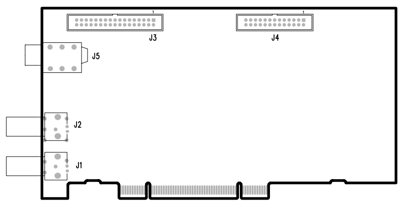
CLK IN (BNC)

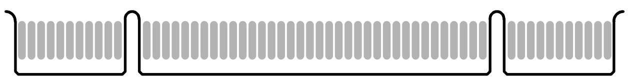


CLK OUT (BNC)

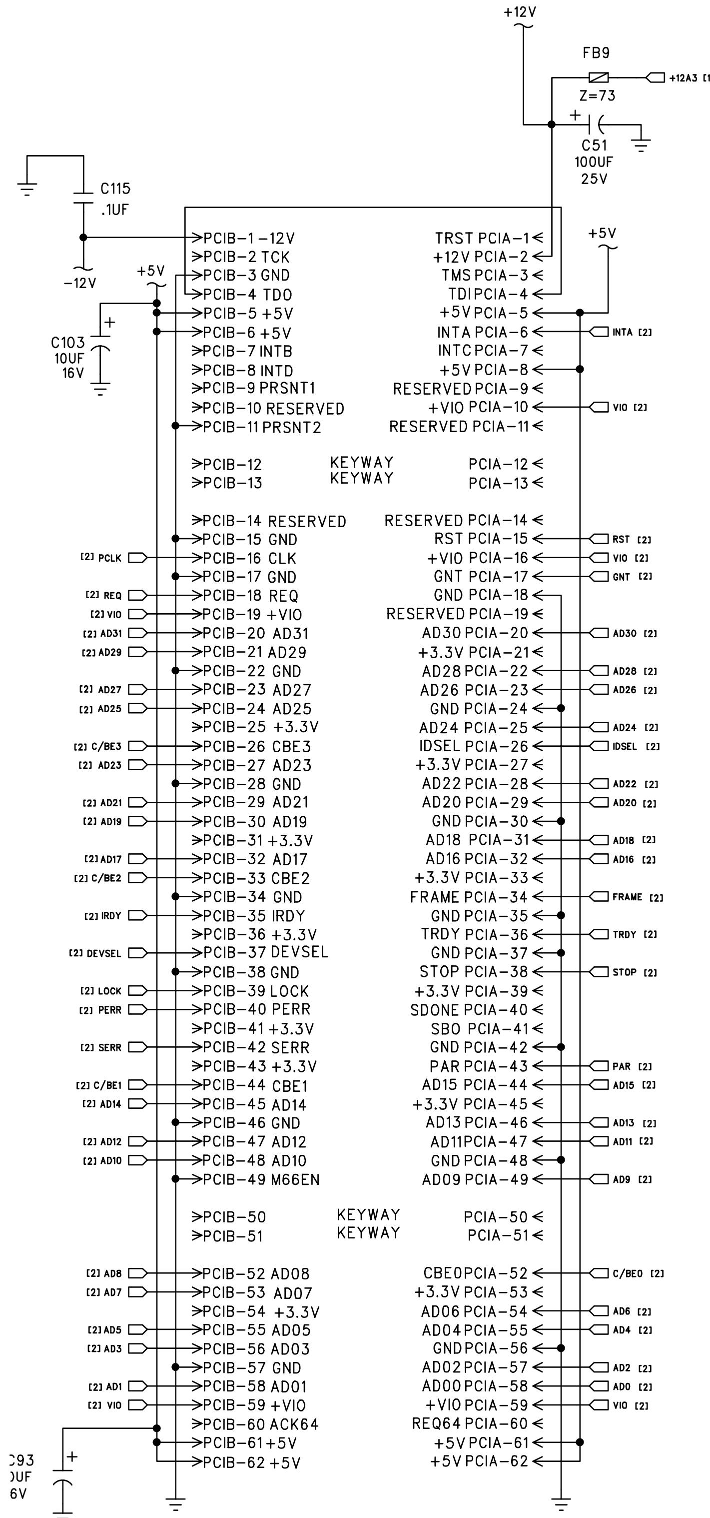


Acuma Board Connectors



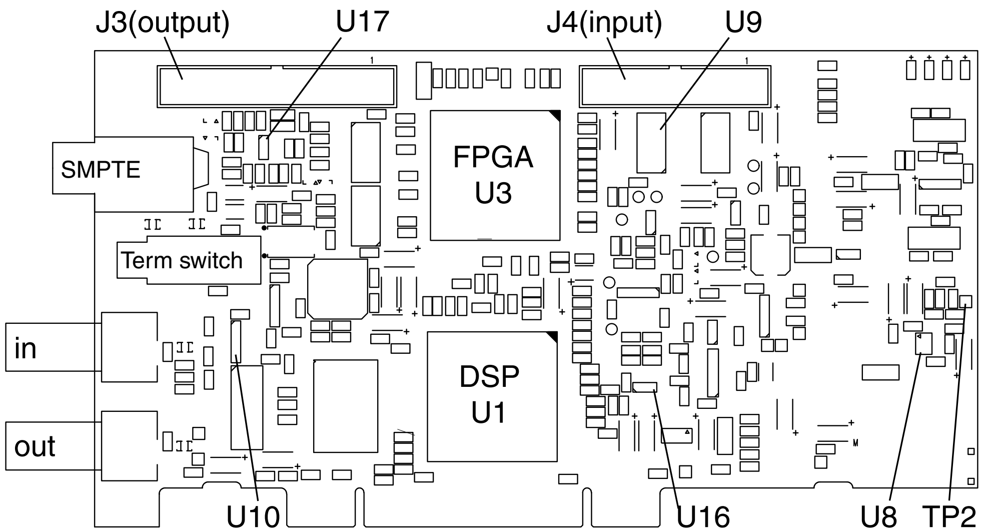


PCI connector



Acuma Board notes

The Acuma board is used to transfer audio from the converter card cage to the PC via the PCI bus. It is also where the SMPTE and Word Clock connection comes into the PC. Physically, it is a card which fits into the PCI bus of the PC, and connects via 2 ribbon cables to the card cage. It has jacks which extend out the back of the unit for WCLK in (BNC), WCLK out (BNC), and SMPTE (1/4"). There is also a pushbutton for selecting termination impedance.



All the audio data comes over the ribbon cables from the card cages to the Acuma card. This data is in digital format. If channels are dead, the ribbon cable connectors are a good place to start looking since they are readily accessible. For instance, for HDR input channels, look at the signals on J4. If you see activity on here, then the problem is on the Acuma card (check U9). If no activity is visible, the problem is within the card cage - possibly a bad I/O card. For output channels, look on J3. These signals ‘flow’ the other way, so if no activity is visible, the problem is on the Acuma card.

A failure in the SMPTE transmit or sync capability could be related to a bad component or faulty joint in the SMPTE circuit. A small amount of analog circuitry (around U17) is used to buffer incoming signals or generate outgoing signals, and then these are converted to digital signals (U16) and fed into the FPGA (U3). Tracing from the FPGA to the jacks might help to spot a problem.

The card contains a PLL for generating WCLK. If WCLK out capabilities are defective, this circuit could be the culprit. Chip U8 is the ‘guts’ of this. The FPGA (U3) generates signals (FIN_A and FIN_B) which are smoothed out by the PLL, visible at TP2. This circuit is extremely sensitive, and bad performance may be caused by a poor joint or ‘worn out’ passive component around U8.

WCLK sync capability is fairly simple. Incoming signals are buffered (U10) and then fed to the FPGA (U3) . Again, tracing from the FPGA back to the jack is a good way to start.

A lot of the “complicated stuff” is handled within the DSP (U1) or FPGA (U3). If either of these components fail, rework is not possible and the card will need replacement.

Small Remote Self-Test

There is a self-test for the small remote which will help you verify that it is working correctly. Follow the steps below to enter the self-test mode:

1. Connect the small remote to the back of the HDR24/96.
2. Put a floppy in the HDR to keep it from booting up (so it will provide power for the small remote without resetting it).
3. On the small remote, hold down Rec Arm 1+2 while powering up the HDR24/96.
4. All leds should light, the firmware version will be displayed on the 7-segment displays (such as 1.03).

In this TEST MODE:

- Pressing any button will extinguish the associated LED
- The INC / DEC buttons control the 7-seg displays and VU meter
- The footswitch controls the (minutes) LED

HDR24/96 Troubleshooting Tips

The following tips come from one of our fearless Mackie service technician heroes. These tips were given of his own free will, in order to help out fellow service techs wherever they may be. We would like to state that he was not harmed, threatened, intimidated, or blackmailed very much.

If you see "No boot" or Video Error 43:

- With the power off, try reseating the Processor IC or the ROM.
- Try removing the Sync/Audio PCI card and see if the error changes. This may show if the card is bad.
- Check cables and connections, and the DC supply connections to the motherboard.
- Possible bad motherboard.

May boot, but won't load software:

- Possible bad hard drive.

External Drive not seen:

- Check cables and connections.
- Possible bad drive bay.

If you see memory extraction error:

- CMOS settings not correct.
- Possible bad hard drive.

Also, we have seen a few bad LEDs on the front panel, not many, but it does happen. Check the EPROM version. Look at the service bulletin at the end of this manual.

BIOS Settings:

Standard CMOS Setup:

Date (mm:dd:yy) : *Current Date*
Time (hh:mm:ss) : *Current Time*

Hard Disks:	Type:	Size:	Cyls:	Head:	Precomp:	Landz:	Sector:	Mode:
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	None	0	0	0	0	0	0	———
Sec Master	Auto	0	0	0	0	0	0	Auto
Sec Slave	None	0	0	0	0	0	0	———

Drive A: 1.44M, 3.5 in.
Drive B: None

Video: EGA/VGA
Halt On: All, But Keyboard

Base Memory:	640K
Extended Memory:	130048K
Other Memory:	384K
Total Memory:	131072K

NOTE: DO NOT use the IDE HDD AUTO DETECTION utility located in the main BIOS screen to mount IDE hard drives. Instead, set the "Type" field for the Primary Master and Secondary Master drives in the drive setup menu above to "Auto." This will cause the BIOS to automatically detect any changes in drive status each time the HDR boots up.

BIOS Features Setup:

Virus Warning	: Disabled
CPU L1 Cache	: Enabled
CPU L2 Cache	: Enabled
CPU L2 Cache ECC Checking	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A,C,SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: Disabled
Boot Up NumLock Status	: On
Typematic Rate Setting	: Disabled
Typematic Rate (Chars/Sec)	: 6
Typematic Delay (Msec)	: 250
Security Option	: Setup
PCI/VGA Palette Snoop	: Disabled
OS Select For DRAM > 64MB	: Non-OS2
HDD S.M.A.R.T. Capability	: Disabled

Chipset Features Setup:

SDRAM RAS-to-CAS Delay	: 3
SDRAM RAS Precharge Time	: 3
SDRAM CAS Latency Time	: 3
SDRAM Precharge Control	: Disabled
DRAM Data Integrity Mode	: Non-ECC
System BIOS Cacheable	: Disabled
Video BIOS Cacheable	: Disabled
Video RAM Cacheable	: Disabled
8 Bit I/O Recovery Time	: 1
16 Bit I/O Recovery Time	: 1
Memory Hole At 15M-16M	: Disabled
PCI 2.1 Compliance	: Enabled
AGP Aperture Size (MB)	: 64
CPU/PCI Clock (MHz)	: Default
Spread Spectrum	: Enabled

Power Management Setup:

ACPI Function	: Disabled
Power Management	: User Define
PM Control By APM	: Yes
Video Off Method	: DPMS
Video Off After	: Suspend
MODEM Use IRQ	: NA
Standby Mode	: Disabled
Suspend Mode	: Disabled
HDD Power Down	: Disabled
PCI/VGA Act-Monitor	: Disabled
Soft-Off by PWR-BTTN	: Instant-Off
PWR Lost Resume State	: Keep Off
Resume on Ring	: Disabled
Resume on LAN	: Disabled
Resume on Alarm	: Disabled

continued....

PCI/PNP Configuration:

Resources Controlled By	: Manual
Reset Configuration Data	: Disabled
Assign IRQ for VGA	: Disabled
Assign IRQ for USB	: Disabled
PCI Slot 1 Use IRQ	: Auto
PCI Slot 2 Use IRQ	: Auto
PCI Slot 3 Use IRQ	: Auto
PCI Slot 4 Use IRQ	: Auto

Used MEM Base Address: N/A

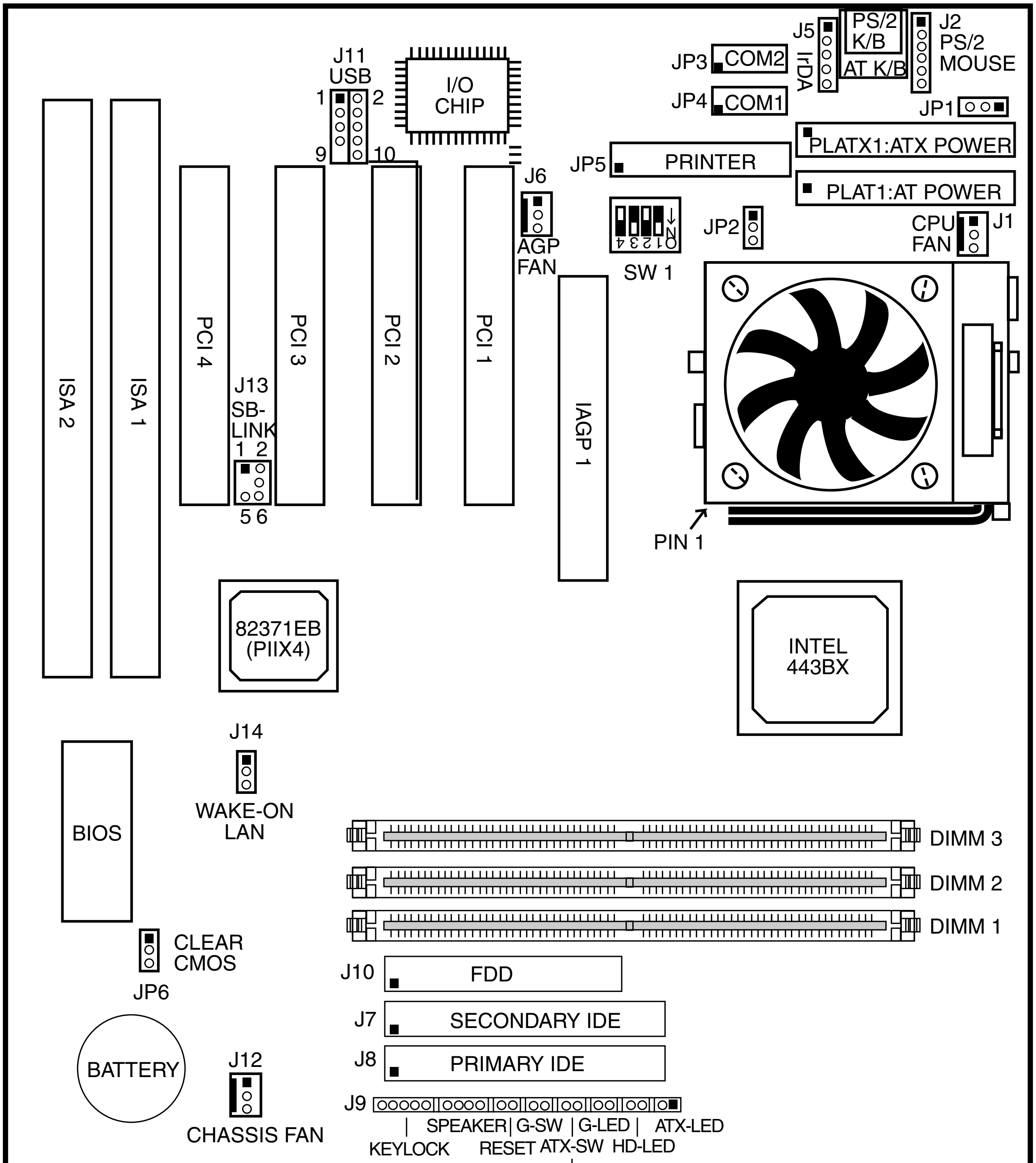
IRQ-3	Assigned to	: PCI/ISA PnP
IRQ-4	Assigned to	: PCI/ISA PnP
IRQ-5	Assigned to	: PCI/ISA PnP
IRQ-7	Assigned to	: PCI/ISA PnP
IRQ-9	Assigned to	: PCI/ISA PnP
IRQ-10	Assigned to	: Legacy ISA
IRQ-11	Assigned to	: PCI/ISA PnP
IRQ-12	Assigned to	: PCI/ISA PnP
IRQ-14	Assigned to	: PCI/ISA PnP
IRQ-15	Assigned to	: PCI/ISA PnP
DMA-0	Assigned to	: PCI/ISA PnP
DMA-1	Assigned to	: PCI/ISA PnP
DMA-3	Assigned to	: PCI/ISA PnP
DMA-5	Assigned to	: PCI/ISA PnP
DMA-6	Assigned to	: PCI/ISA PnP
DMA-7	Assigned to	: PCI/ISA PnP

Integrated Peripherals Setup:

IDE HDD Block Mode	: Enabled
IDE Primary Master PIO	: Auto
IDE Primary Slave PIO	: Auto
IDE Secondary Master PIO	: Auto
IDE Secondary Slave PIO	: Auto
IDE Primary Master UDMA	: Auto
IDE Primary Slave UDMA	: Auto
IDE Secondary Master UDMA	: Auto
IDE Secondary Slave UDMA	: Auto
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
USB Keyboard Support	: Disabled
Init Display First	: AGP
KBC Input Clock	: 8 MHz
Onboard FDC Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
UART2 Mode Select	: Normal
Onboard Parallel Port	: **Disabled***
Keyboard/Mouse Power On	: Disabled

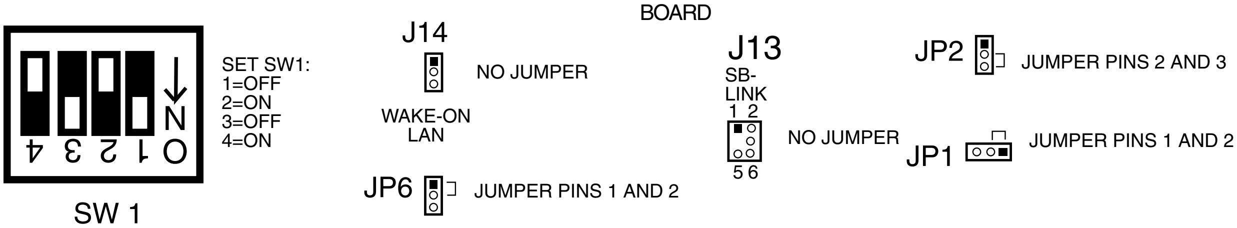
***NOTE:** Be sure that the Onboard Parallel Port is *Disabled* in this setup.

Motherboard layout



■ SQUARE PIN = PIN 1

TO J8
OF BRAIN
BOARD



HDR HOME

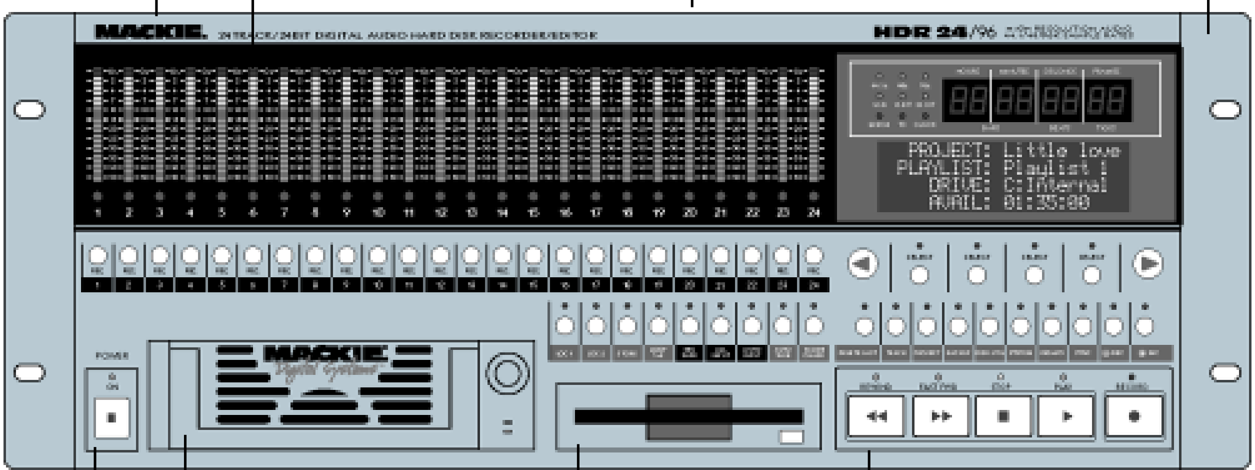
Quick Parts

550-318-00 Screened Front Panel

780-047-00 Lexan Meter Window

550-314-00 Top Cover

551-087-00 Rack ears



480-041-00 Drive Frame

480-029-00 Floppy Drive

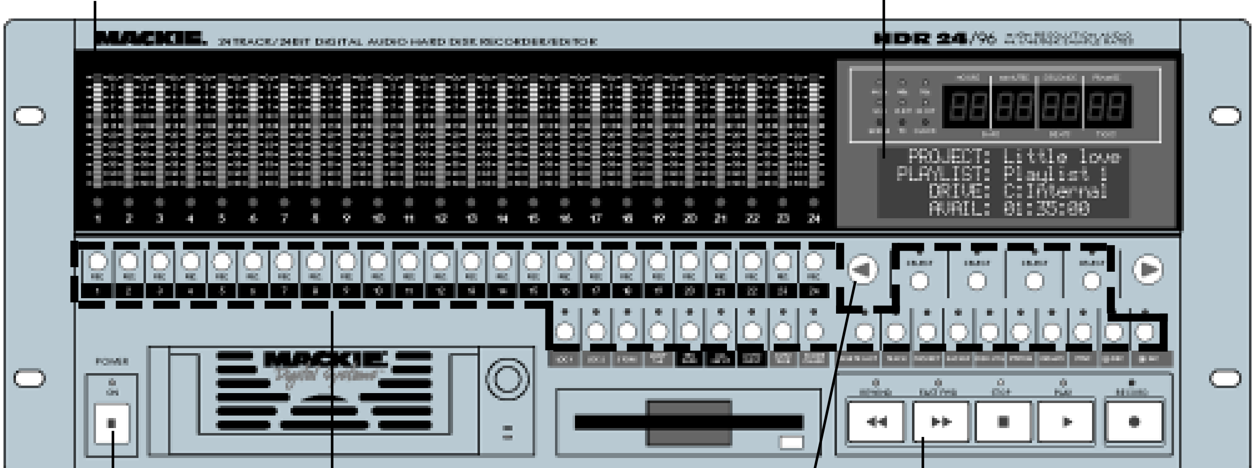
760-175-02 Transport Button Bezel

760-159-01 Power Switch Bezel

750-001-0 Bumpon Feet
055-178-00-01 Front Panel PCB assembly
640-001-00 LineCord 120VAC

080-180-00 VFD Subassembly

304-025-00 LED Array (1 for each channel)



760-168-00 Small Round Buttons
500-033-02 Switch SPST

760-155-01 Button, Rewind/ Fast Frwrd
760-155-03 Button, Stop
760-155-04 Button, PLay
760-155-05 Button, Record
500-062-00 Transport Switch

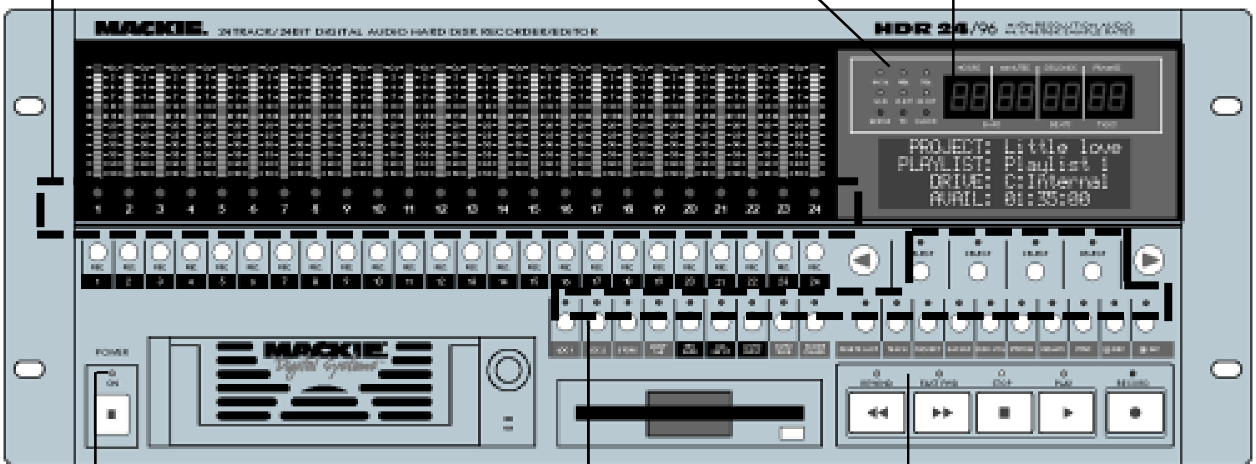
760-158-02 Power Switch Cap
500-028-00 Switch 12mm

760-131-02 Button, Round, Arrow
500-028-00 Switch 12mm

304-081-02 LED Red, Error, TC, Clock
304-082-02 LED Green, 6-Bit, 24-Bit, 44.1K, 48K, 96K, VARI

304-081-02 LED RED Channel LEDs (x24)

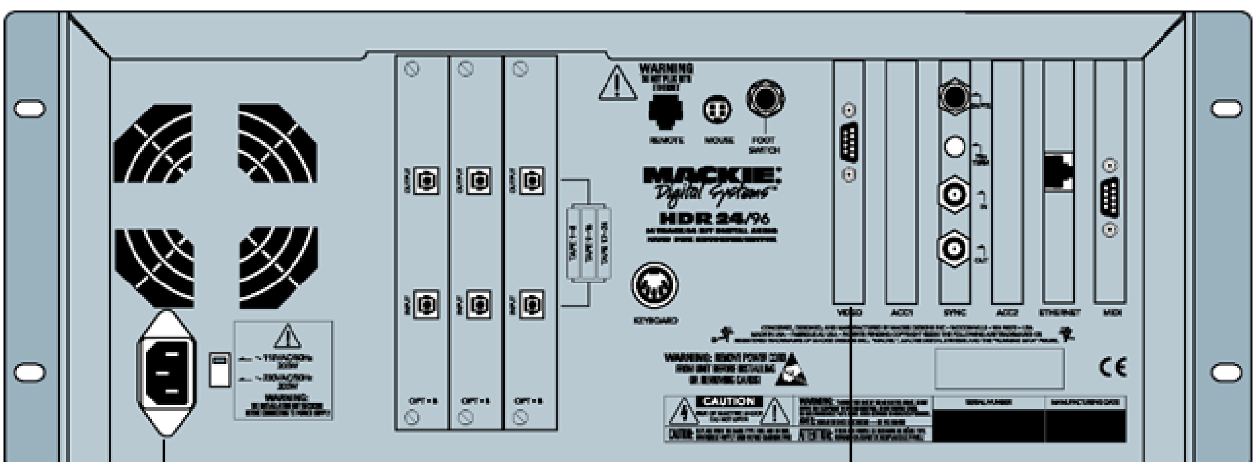
304-035-00 7 Segment Display



304-093-02 LED Red, Tower

304-001-00 LED Red, Record
304-003-00 LED Yellow, FF, Stop, RW
304-004-00 LED Green, Play

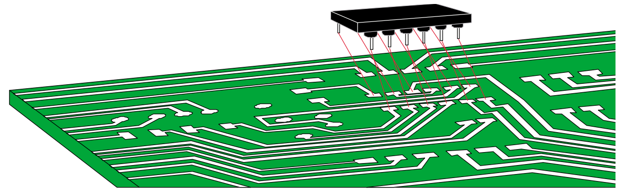
304-001-00 LED Red, Power



080-247-00 SA POWER SUPPLY

480-045-00 VIDEO CARD
480-046-00 ETHERNET CARD
480-053-00 MIDI CARD
055-367-00-01 ACUMA CARD

055-178-00-01 PCB ASSY FRONT PANEL
055-179-00-01 PCB ASSY BACKPLANE
055-180-00-01 PCB ASSY BRAIN
055-268-00-01 PCB ASSY RMT I/O
055-359-00-01 PCB ASSY HDR179 POSTSTAMP
480-039-00 MOTHERBOARD CB50-BX
329-088-03 MICROPROC CELERON 433MHZ
480-043-00 OEM FAN MICROPROC
480-062-00 SDRAM 128MB 2MX8 DIMM MOD



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HDR 24/96 EPROM Replacement

Models affected:

If you are working on an HDR 24/96 hard disk recorder before serial number CD11218, please update the EPROM to Revision 1.2 or higher. Changing the EPROM may be one fix for the "system error 43" message.

Note:

If the EPROM is before Rev 1.2, the initial front panel message "loading..please wait" is all lower case letters.

If the EPROM is Rev 1.2, then the initial front panel message "Loading..Please Wait," has some upper case letters.

```
MACKIE DIGITAL SYSTEMS
      HDR 24/96
loading, please wait
```

```
MACKIE DIGITAL SYSTEMS
      HDR 24/96
Loading, Please Wait
```

HDR 24/96 front panel display just after turn-on

Safety Warning:

Caution! These instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing unless you are qualified to do so. Refer all service to qualified personnel.

ESD Warning:

Caution! The HDR 24/96 should be treated with respect and repaired using all standard ESD precautions.

Tools Required:

Phillips screwdriver, ESD wriststrap and workstation

Parts Required:

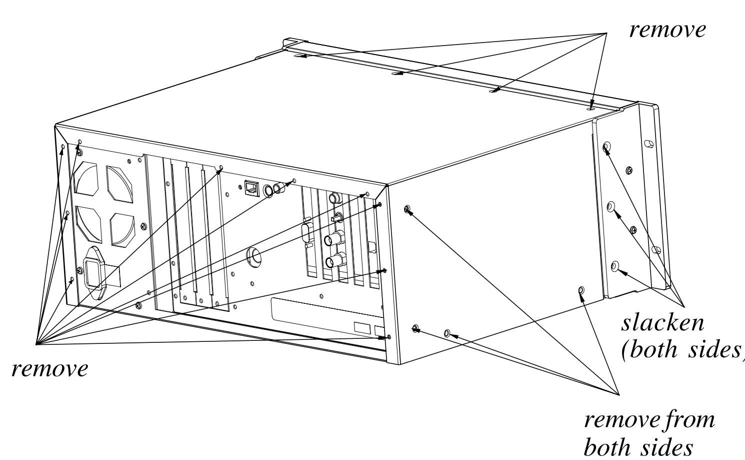
EPROM (revision 1.2 or higher) 080-174-00

Overview

The EPROM replacement is not a major job, so fear not. The EPROM is fitted to a socket on the Brain board in front of the internal hard drive.

Procedure:

1. Turn off the power to the HDR 24/96.
2. Remove all cords (including the power cable and cables) from the HDR 24/96.
3. Place the HDR 24/96 on a soft surface.
4. Undo the three screws on each of the rack brackets, just enough to give a little slack when removing the top cover.
5. Remove the top cover by undoing the other screws shown.

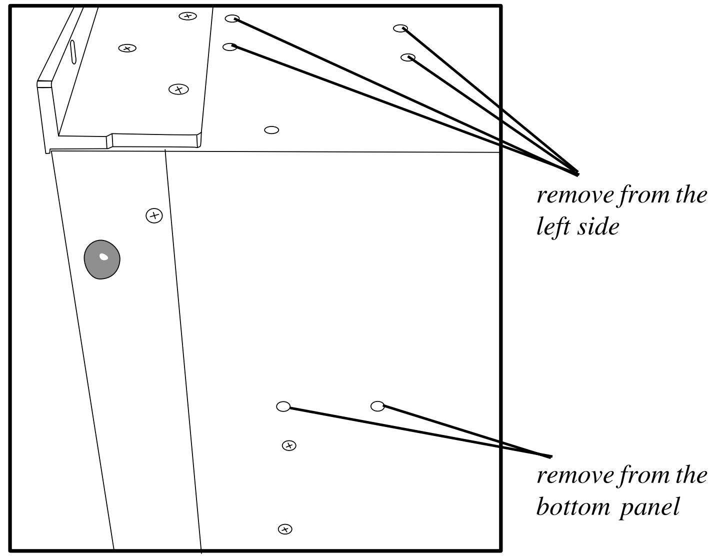


HDR HOME

Procedure continued:

6. Remove the four side screws and two bottom screws securing the internal hard drive assembly to the chassis. This gives a little bit more access to the Brain board, as the hard drive assembly can move backwards a small distance.

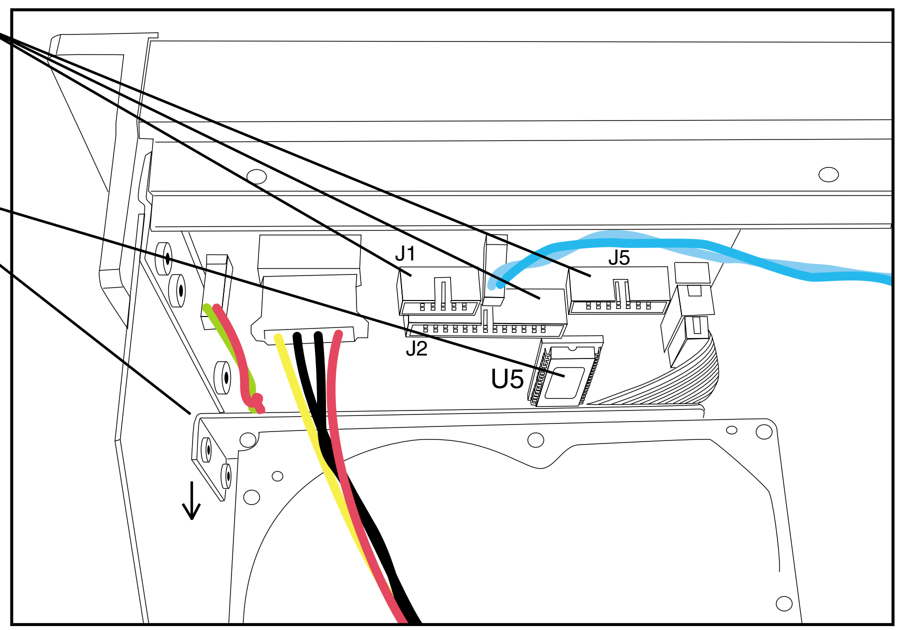
   You can also remove the hard drive assembly if you prefer. Make a note of all the connections and the exact cable routing for when you put it back in.



7. Undo the connectors at J1, J5 and J2 on the Brain board. Move them out of the way so you can reach the EPROM U5.

8. Slide the hard drive assembly backwards to give you some room, and then use a small screwdriver to remove the existing EPROM from its socket.

9. You should first bend the legs of the EPROM to make sure they are straight down. Then carefully and securely put in the new EPROM, making sure that each pin is in its socket. The notched end of the EPROM should point upwards.



10. Replace the six hard drive screws.

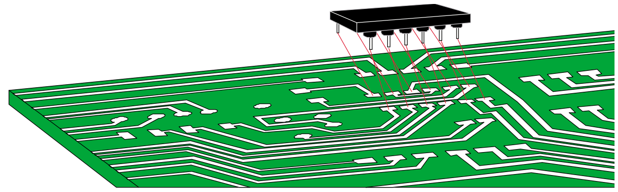
11. Replace the top cover and secure all the screws, including the rack bracket screws.

12. Perform a complete specification test before returning the HDR 24/96 to the customer.

13. The old EPROM may be saved and recycled as a unique earring, bound to break the ice at service technician parties.



HDR HOME



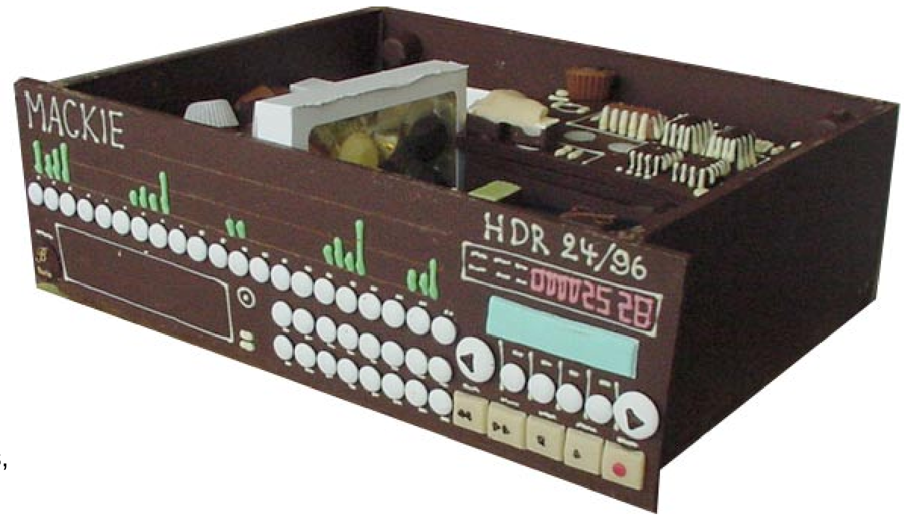
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HDR 24/96 Hard Disk Recorder — **Bulletin: HDR 1st April 2001**

Models affected: HDR 24/96

Add this as part of your normal repair procedures.



Symptom:

HDR 24/96 does not power up, and yet it tastes surprisingly good.

Possible Cause:

Due to a mix up in documentation, some HDR 24/96 hard disk recorders were accidentally made of chocolate.

Solution:

Replace all circuit boards, creme-filled ICs, marzipan transistors, truffle capacitors, all candy chassis work, screws and liquorice ribbon connectors.

Note:
Not all models are affected. If you receive an HDR 24/96 for repair, it is recommended that you nibble the front panel. If it tastes good and chocolaty, then follow the repair procedure outlined below. If it tastes metallic and you break a few teeth in the process, there may be another cause.

Safety Warning:

⚠ Caution! These instructions are for use by qualified personnel only. To avoid overeating, do not perform any servicing unless you are qualified to do so. Refer all service to qualified, hungry service personnel, who are specially trained to deal with chocolate, glazed donuts, pizza and other hazards.

Tools Required:

Phillips screwdriver, Torx and Allen drivers, safety glasses, knife, fork, safety bib and overalls.

Procedure:



1. Turn the power off and remove **all** external cables.
2. Place the HDR 24/96 on a soft dry surface.
3. Take off the top cover and inspect the circuit boards.
4. Using service tools (knife and fork), eat all the circuit boards one at a time, taking care to share with your service colleagues.
5. Eat all the chassiswork, ribbon connectors until the HDR 24/96 is gone.
6. Replace with a new model.
7. Perform a complete specification and taste test before returning the new unit to the customer.

HDR HOME